

INTRODUCTION TO THE ANIMATED INFORMATION SYSTEM (AIS) FOR GROUNDWATER ASSESSMENT & REMEDIATION



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PURPOSE OF THIS SLIDE PACK

- **Describe the Animated Information System (AIS) for Groundwater Assessment & Remediation**
- **Provide basic instruction on use of the AIS**
- **Discuss how the AIS can be effectively used**
- **Overview optional training opportunities**

BACKGROUND

- This tool was originally developed by Curt Stanley while he was working at Shell as the Global Discipline Leader for Soil and Groundwater Management. Curt worked with Lorax (a California firm) for high-end graphics visualization. Due to its large success and high demand, Shell has made this tool publicly available for external use with thousands of copies being distributed across the globe to various entities including industry, consultants, academia, regulatory and other governmental agencies, law firms, and the general public.
- GSI Environmental now coordinates global distribution of the AIS on behalf of Shell.
- The AIS is available (**free of charge**) as a download from the GSI Environmental ftp site at the following link: <http://www.gsi-net.com/en/software/free-software/animated-information-system-for-groundwater-assessment-and-remediation.html>
- While the tool includes various overviews and a tutorial (with subtitles in multiple languages including: Chinese, Brazilian Portuguese, Spanish, Italian, German, Dutch, French and English), additional training is recommended to help fully understand and utilize the power of the AIS.

Versions

- Edition 2 (replaces the original version with the most up-to-date technical information)
- Spanish Version (this is based on the original version with all text translated into Spanish)
- Metric Version (this is based on the original version)

WHAT IS THE AIS?

- An interactive animated tool to help conceptualize basic elements of hydrogeology, site assessment, contaminant migration, remediation, & UST systems
- Focuses on petroleum releases from USTs, but has much broader applicability
- This tool addresses issues that are common to most sites, but can not be modified to illustrate site-specific conditions
- It can, however, be used as a platform to introduce key concepts related to a site or important regulatory concerns

WHAT TOPICS DOES THE AIS (ED. 2) ADDRESS?

The AIS is designed to convey a basic understanding of:

- **Hydrogeology**
 - Unconfined/ Confined Aquifers, Aquitards, Perched Zones
 - GW Flow Gradients & Velocity
- **Contaminant Migration Concepts**
 - Key processes such as **Retardation & Biodegradation (including degradation rates/ half-life)**
 - Includes sections on **NAPL Considerations & Petroleum Vapor Intrusion**
- **Site Investigation**
- **GW Vulnerability**
- **Various Remediation Technologies (now includes Land Farming)**
 - Includes sections on **Generic Spill Response & Risk-Based Corrective Action/ Sustainable Remediation**
- **Underground Storage Tank Systems**
 - UST Systems (suction & pressurized systems)

 **New in Ed. 2**

HOW CAN THE AIS BE USED?

- To facilitate understanding & alignment on key issues with project managers, consultants, and other project stakeholders
- To facilitate advocacy with regulators
- To facilitate awareness of key issues by various external stakeholders (e.g., the public) involved with a project
- To facilitate the management's understanding of key issues related to soil & groundwater contamination
- As a teaching tool for use by companies, regulators, lawyers, schools, & universities

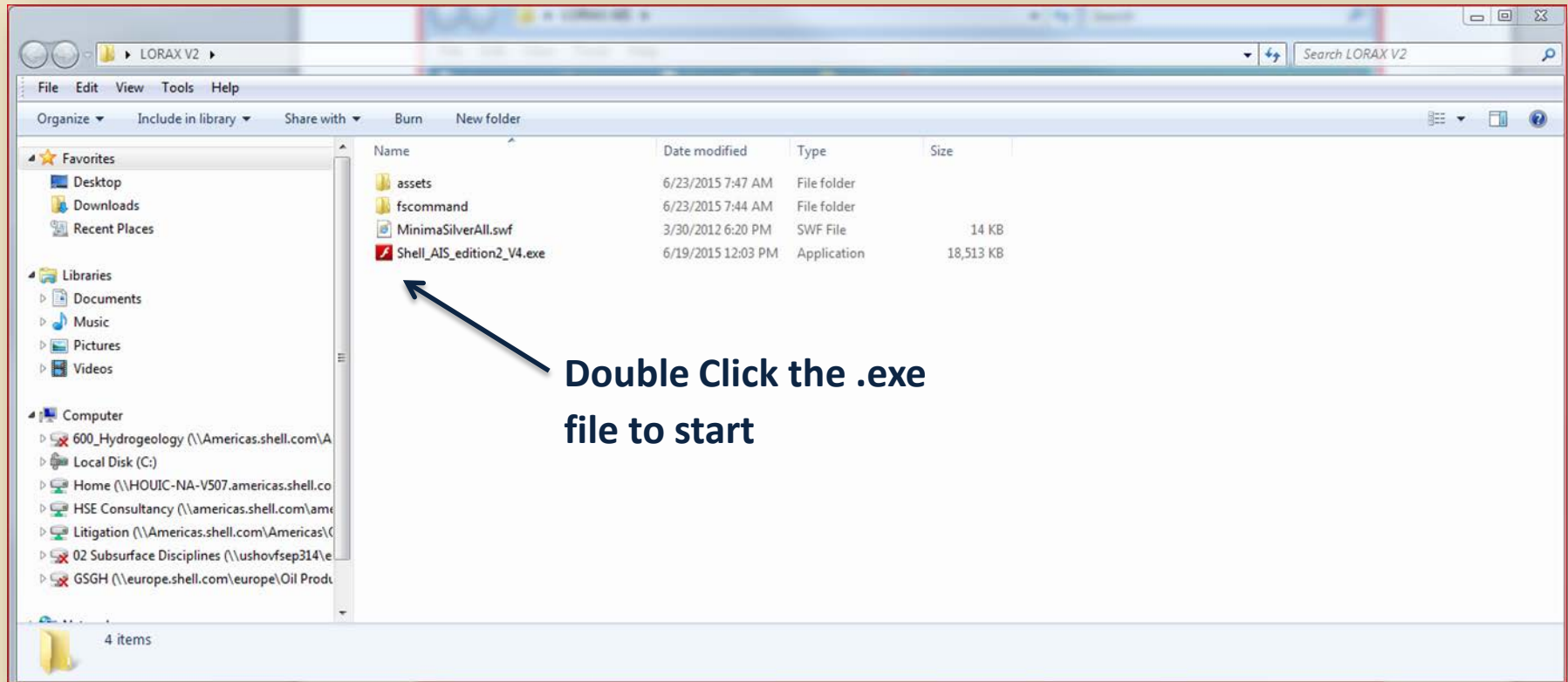
KEY ASPECTS OF THE AIS

- There are 5 major modules consisting of:
 1. Hydrogeology
 2. Concepts (Fate and Transport)
 3. Vulnerability
 4. Remediation
 5. Tanks
- Each module contains hidden buttons that the user can use (or not use) depending upon the audience
- The inclusion of the modules and hidden buttons helps the user tailor the presentation to a particular audience
- The AIS is intended to be utilized by a **KNOWLEDGEABLE USER** in order to most effectively convey information to the target audience
- *Optional advanced training is helpful in order to facilitate effective use of the AIS*

RUNNING THE TOOL

- The AIS is programmed in Adobe Flash & can run on most PCs (but has not been programmed to run well on Apple machines)
- The program consists of ~ 450 megabytes of files & should be downloaded to a folder on the hard drive in order to run effectively
- The animations do not lend themselves to net meetings since the computer screen cannot resolve the animation quickly enough over the internet

SAVE & LAUNCH THE AIS FROM YOUR COMPUTER



DISCLAIMER

Adobe Flash Player 16

File View Control Help



Groundwater Assessment and Remediation[®]

A LORAX **ANIMATED INFORMATION SYSTEM**[™] Edition 2, 2015

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0001

After reading the disclaimer, click the disclaimer box & click continue

START PAGE

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Overview Modules

- Introduction
- Quick Overview
- Detailed Overview
- Hydrogeology Tutorial
- Main Page

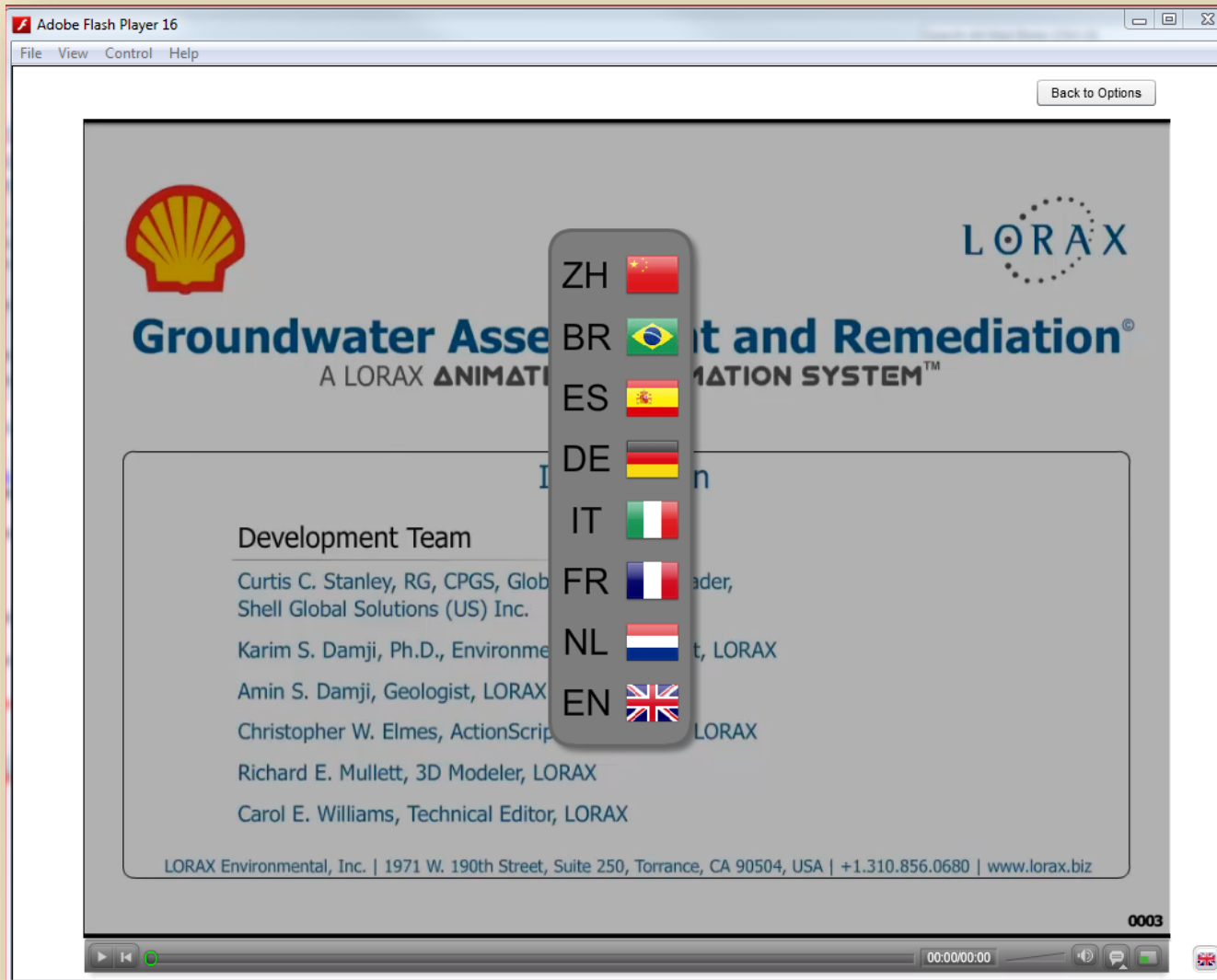
New users should review all of the overview modules prior to running the program from the Main Page

0002

OVERVIEW MODULES

- **Introduction**
 - **Welcome & general considerations**
- **Quick Overview**
 - **Basic use of the AIS tool**
- **Detailed Overview**
- **Hydrogeology Tutorial**
 - **Demonstrates effective navigation through the AIS**
- **Running through each overview section will facilitate the use & understanding of the AIS**
- **Subscripts in various languages are available for each training tab**
- **The videos associated with each training tab are based on Ed. 1 of the AIS & are still applicable for this version**
- **Advanced training is available to facilitate effective use of the AIS**

USE OF SUBSCRIPTS WITH OVERVIEW MODULES



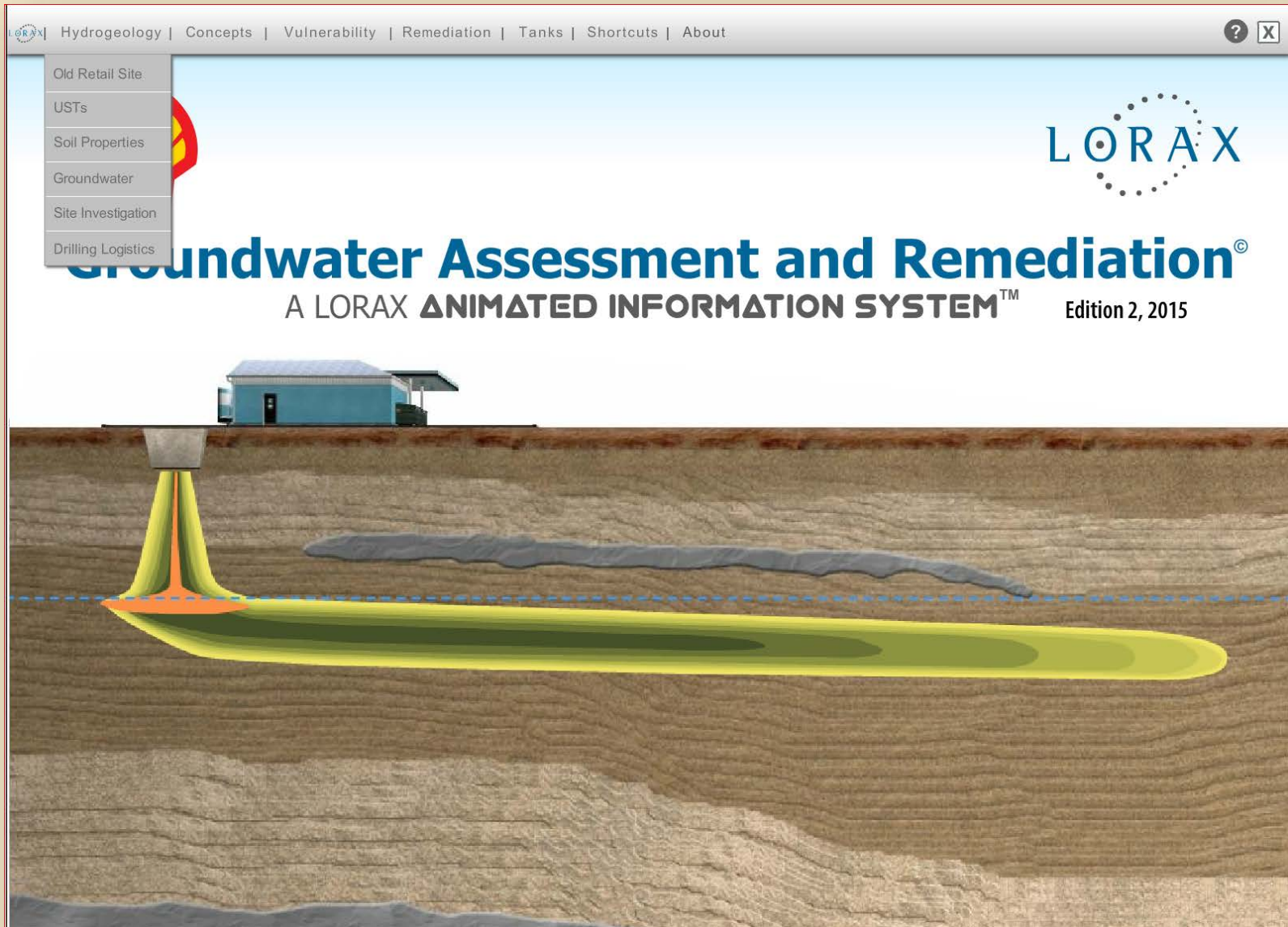
1. Select the appropriate tab from the Start screen
2. A language bar will appear (as shown)
3. Select the desired language
4. The language bar will minimize & the desired language flag will be displayed in the lower right of the screen
5. Click the play button on the lower toolbar to start the video
6. Subscripts will appear above the lower toolbar
7. Click on the “Back to Options” button on the top right to return to the start page

MAIN PAGE – DROP-DOWN TOOLBAR

- Clicking on the LORAX logo will always take you back to the Start Page
- Drop-down toolbar can be accessed by moving the cursor to the top of the screen
- Hidden button mode

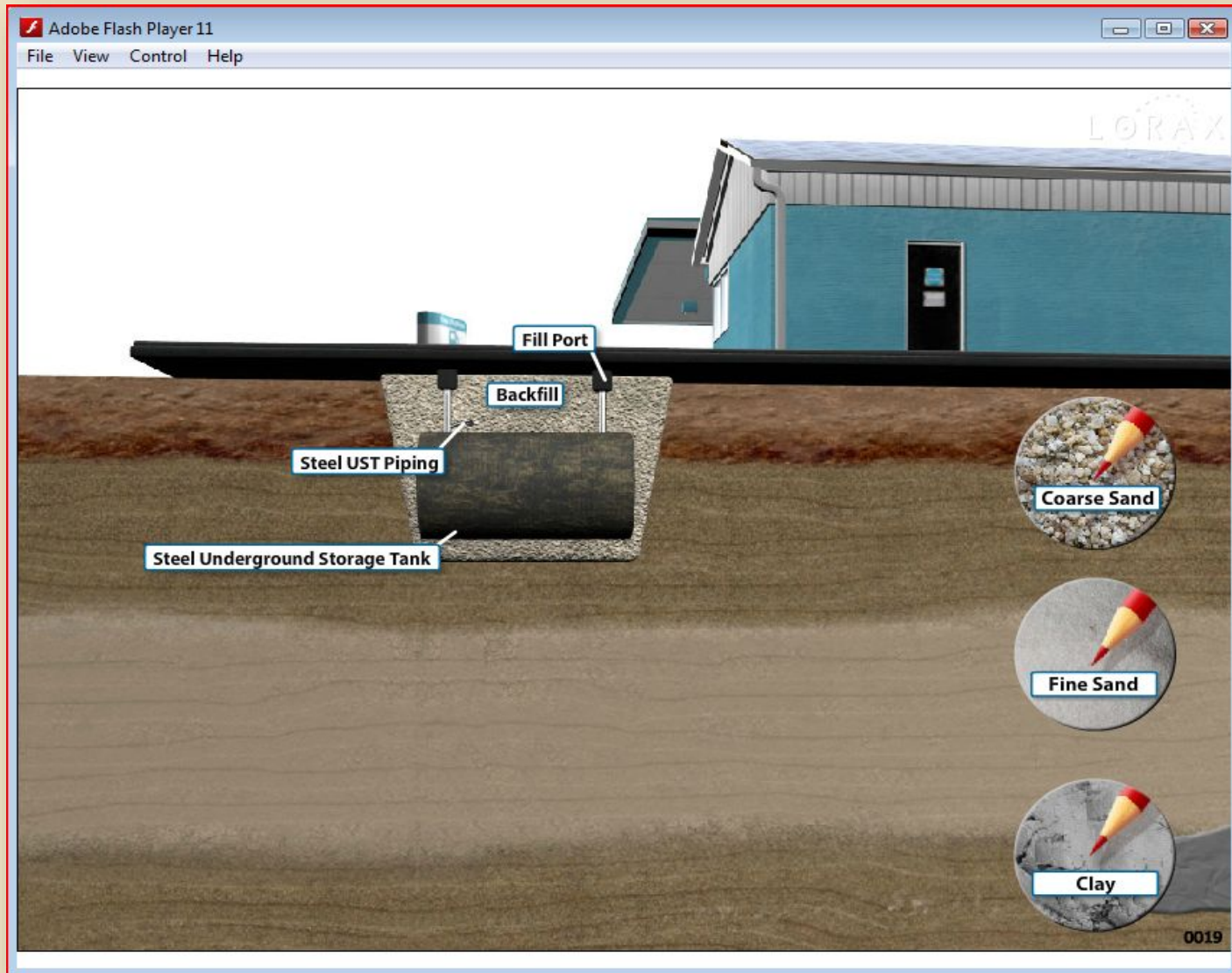


HYDROGEOLOGY SECTION – DROP-DOWN MENU



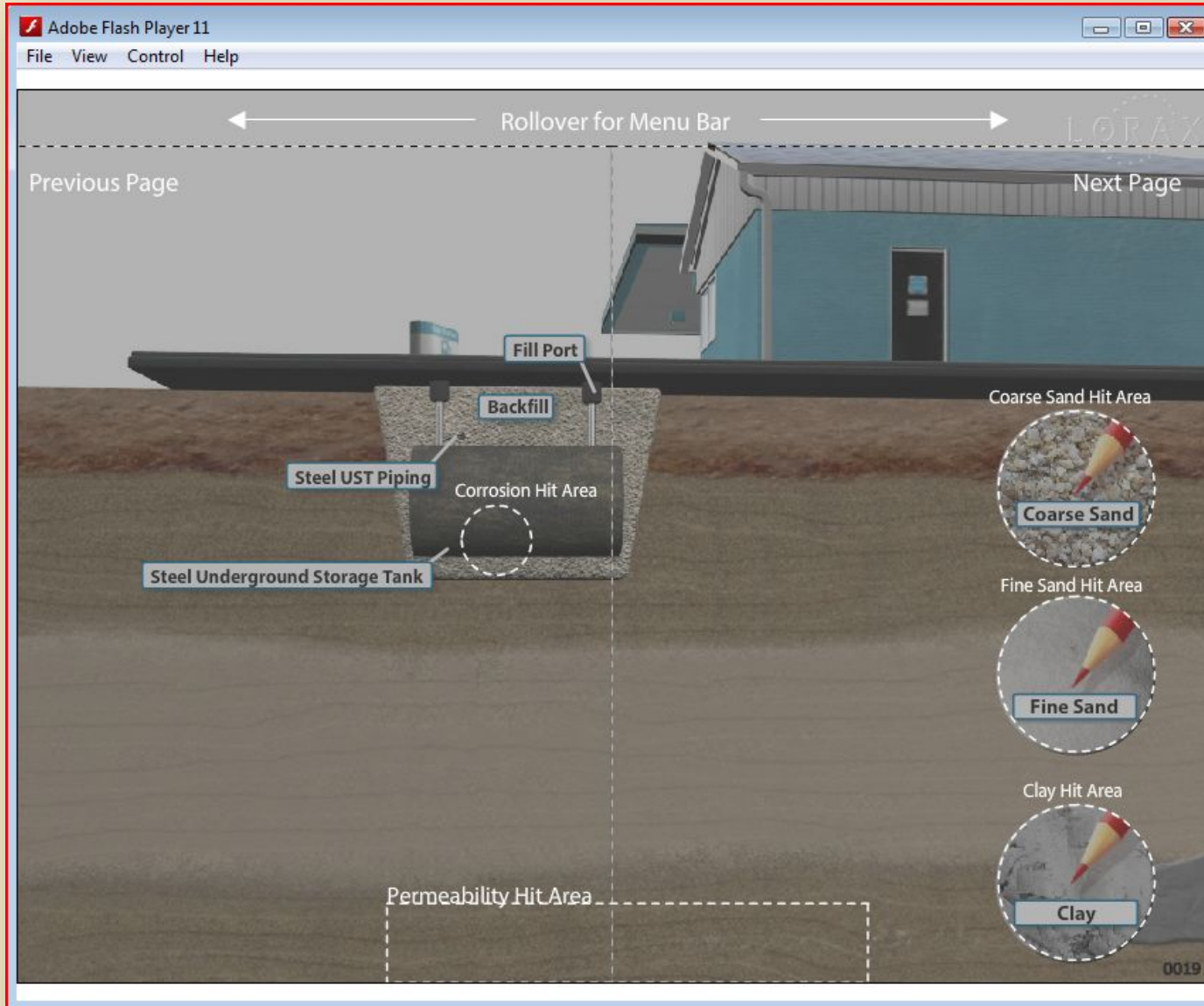
TYPICAL SCREEN

- Clicking on the left half of the screen will move back one slide



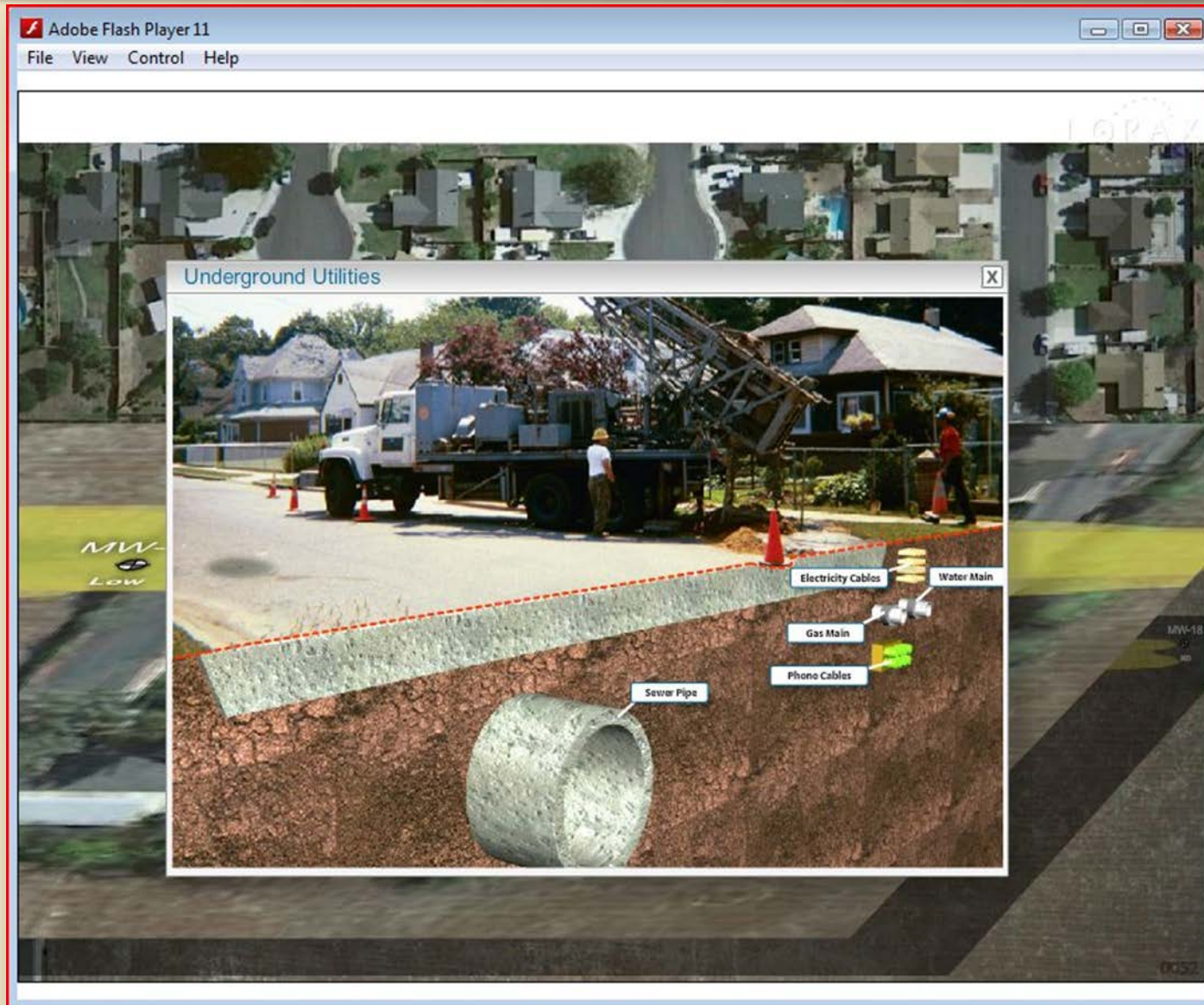
- Clicking on the right half of the screen will advance to the next slide

HIDDEN BUTTONS

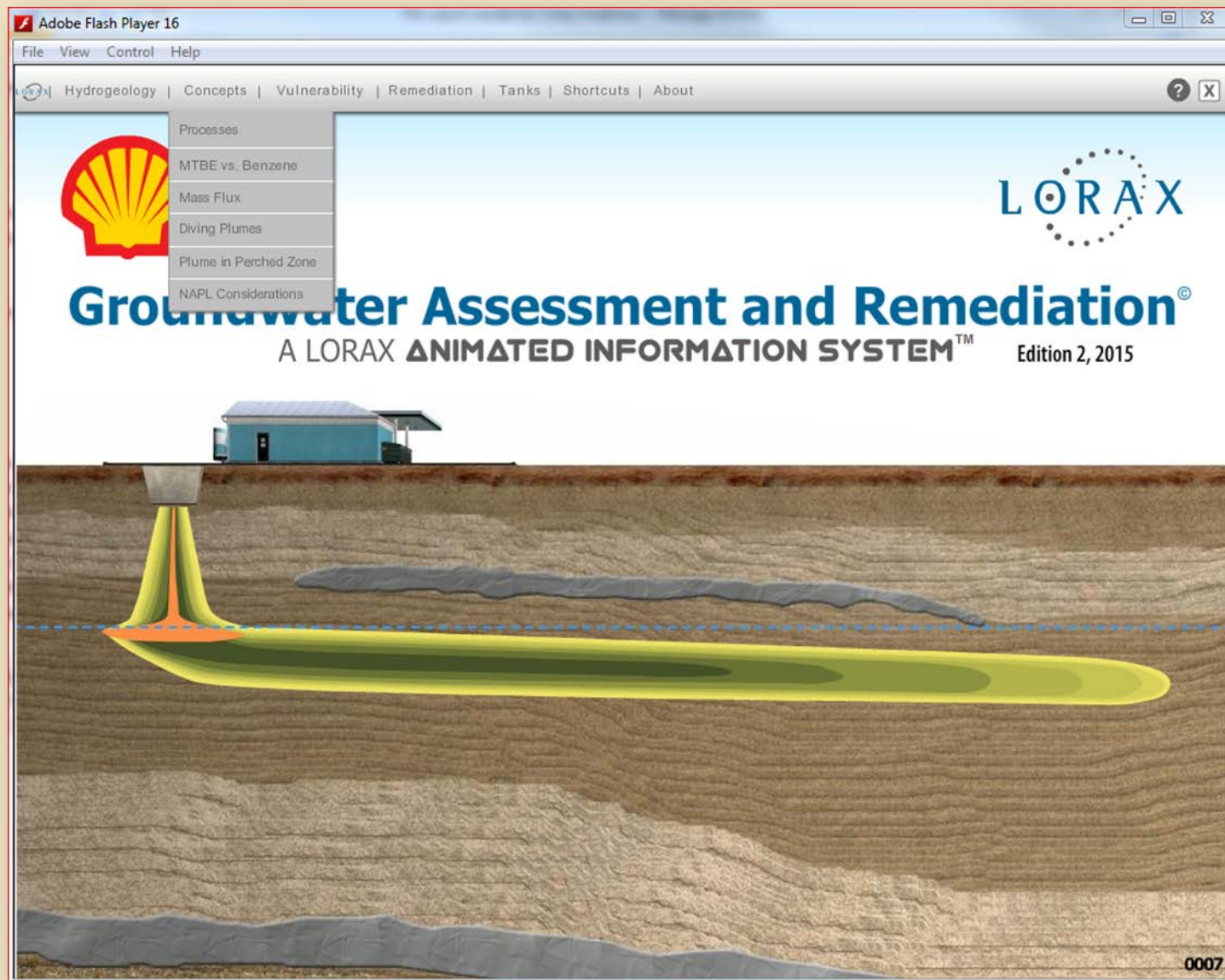


- Hidden buttons can be shown on a grayed-out screen by clicking on the ? on the upper drop-down bar
- Drop-down bar is hidden until the cursor is moved to the top of the screen
- It is a good idea to initially go through all screens in this mode
- Clicking on the ? again will return the screen to normal operating mode
- Moving the cursor to the hidden button target zone (invisible in normal mode) & clicking will open new material

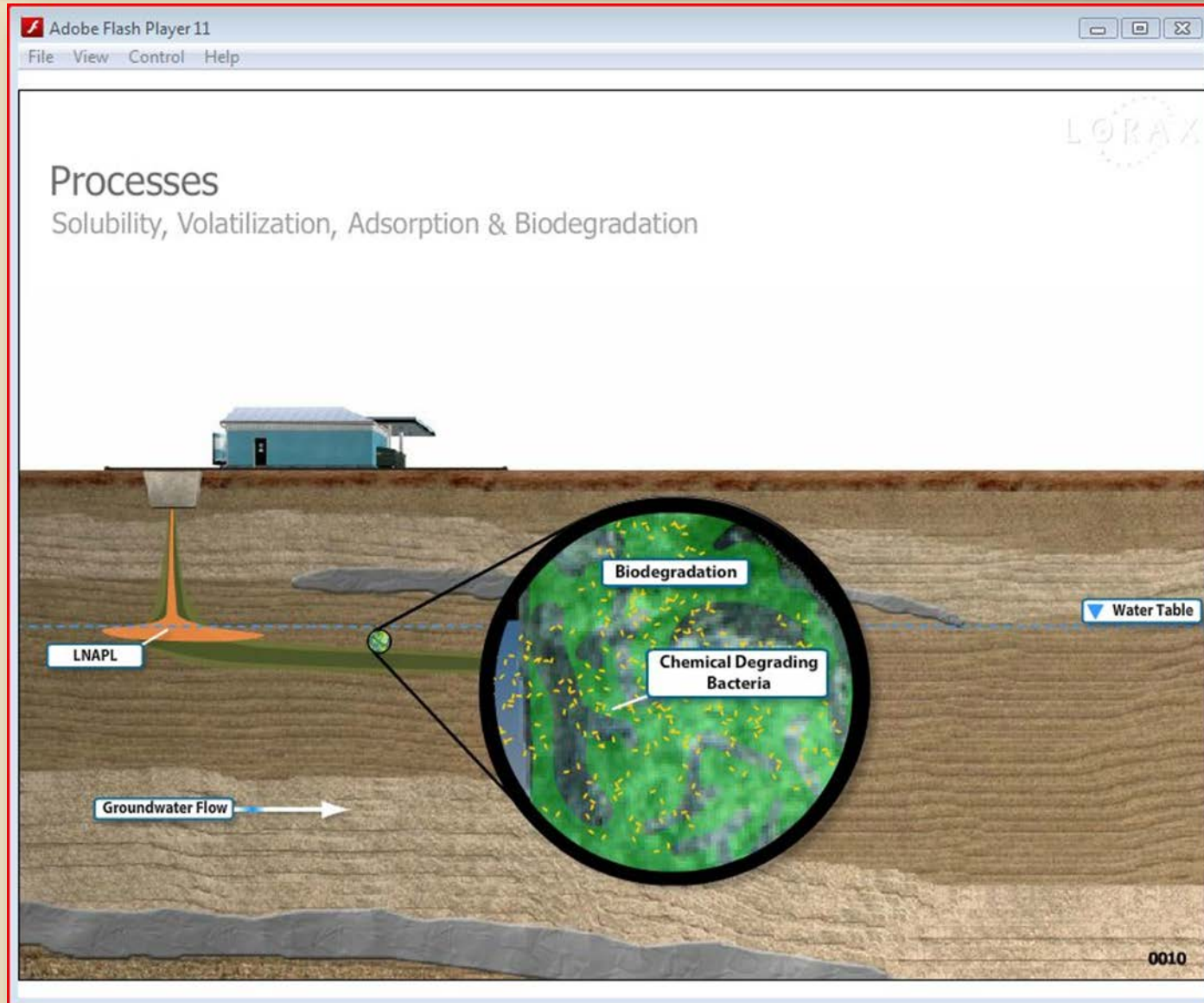
DRILLING LOGISTICS EXAMPLE



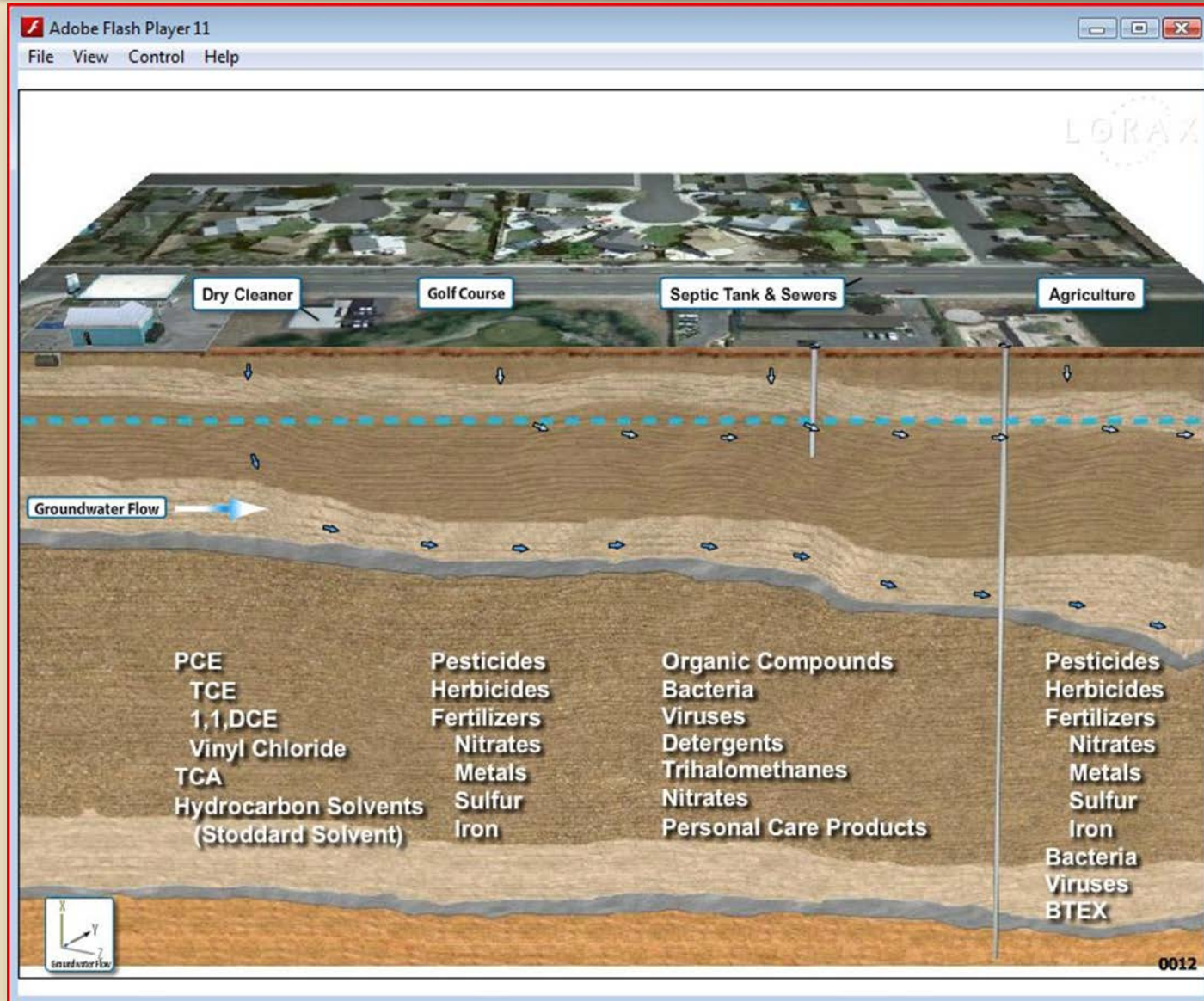
CONCEPTS SECTION – DROP-DOWN MENU



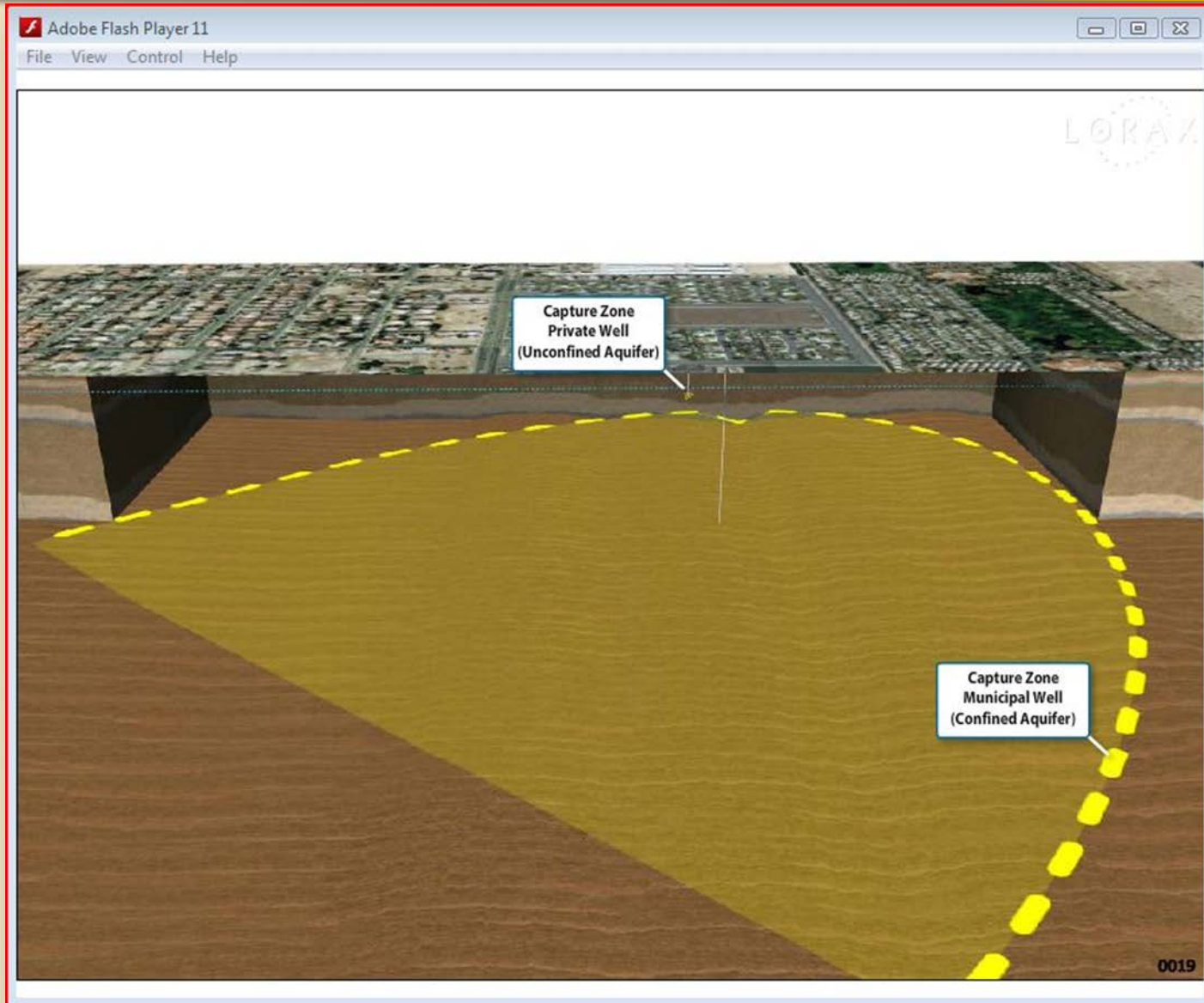
BIODEGRADATION EXAMPLE



VULNERABILITY SECTION - CONTAMINANTS



VULNERABILITY SECTION – GROUNDWATER ZONES



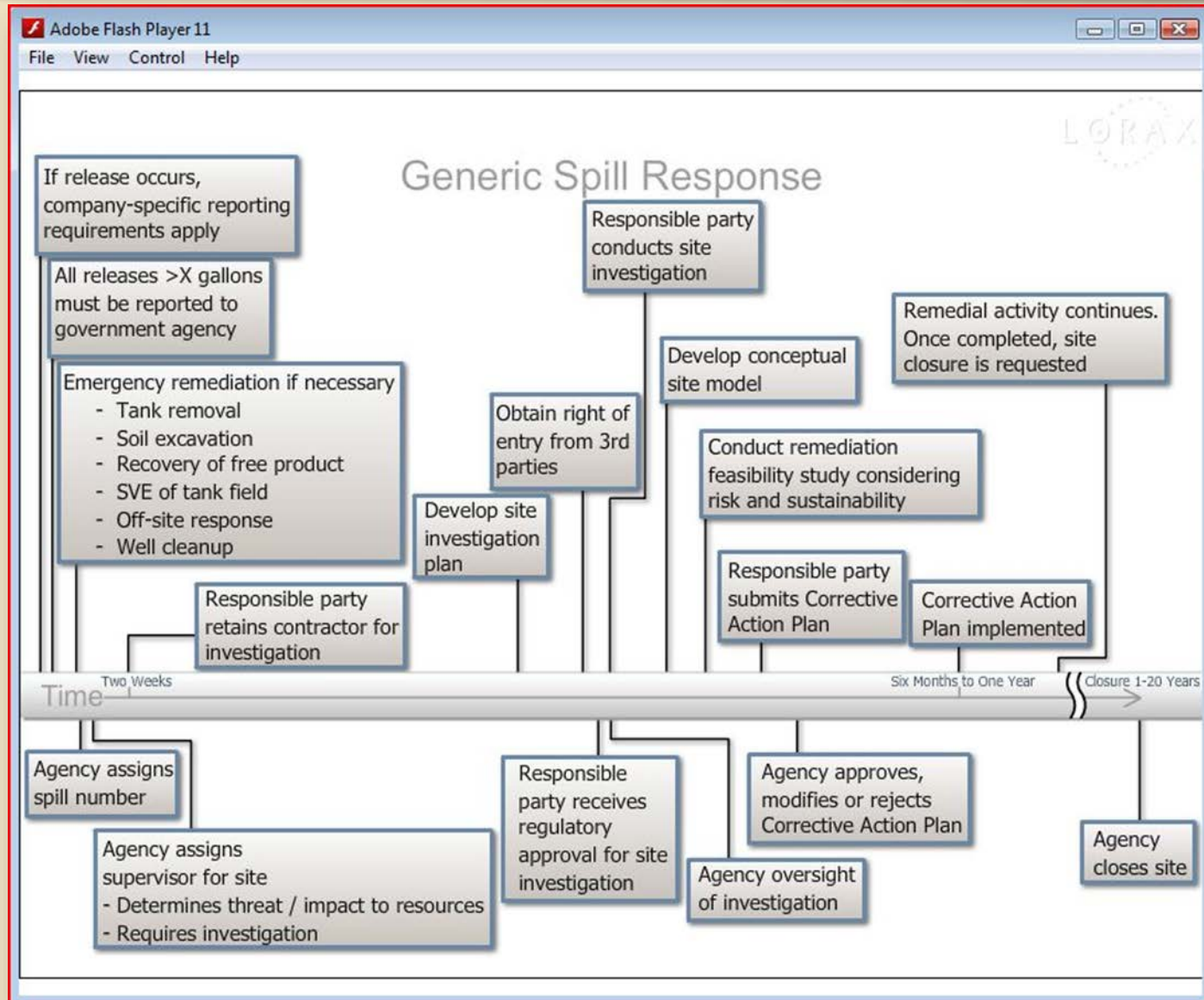
REMEDIATION SECTION – DROP-DOWN MENU



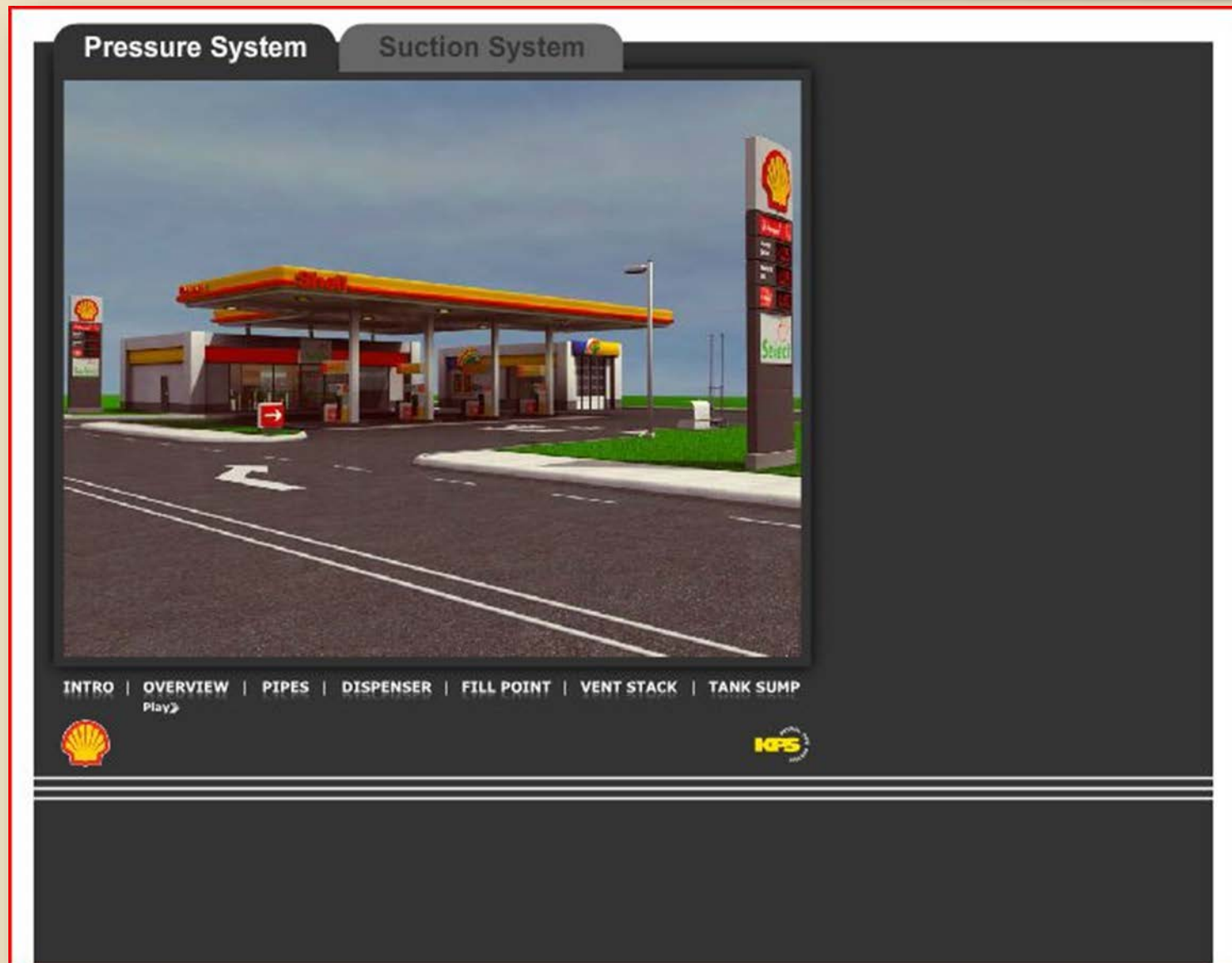
REMEDIATION – PUMP & TREAT (HYDRAULIC CONTAINMENT)



GENERIC SPILL RESPONSE – PROJECT TIMELINE



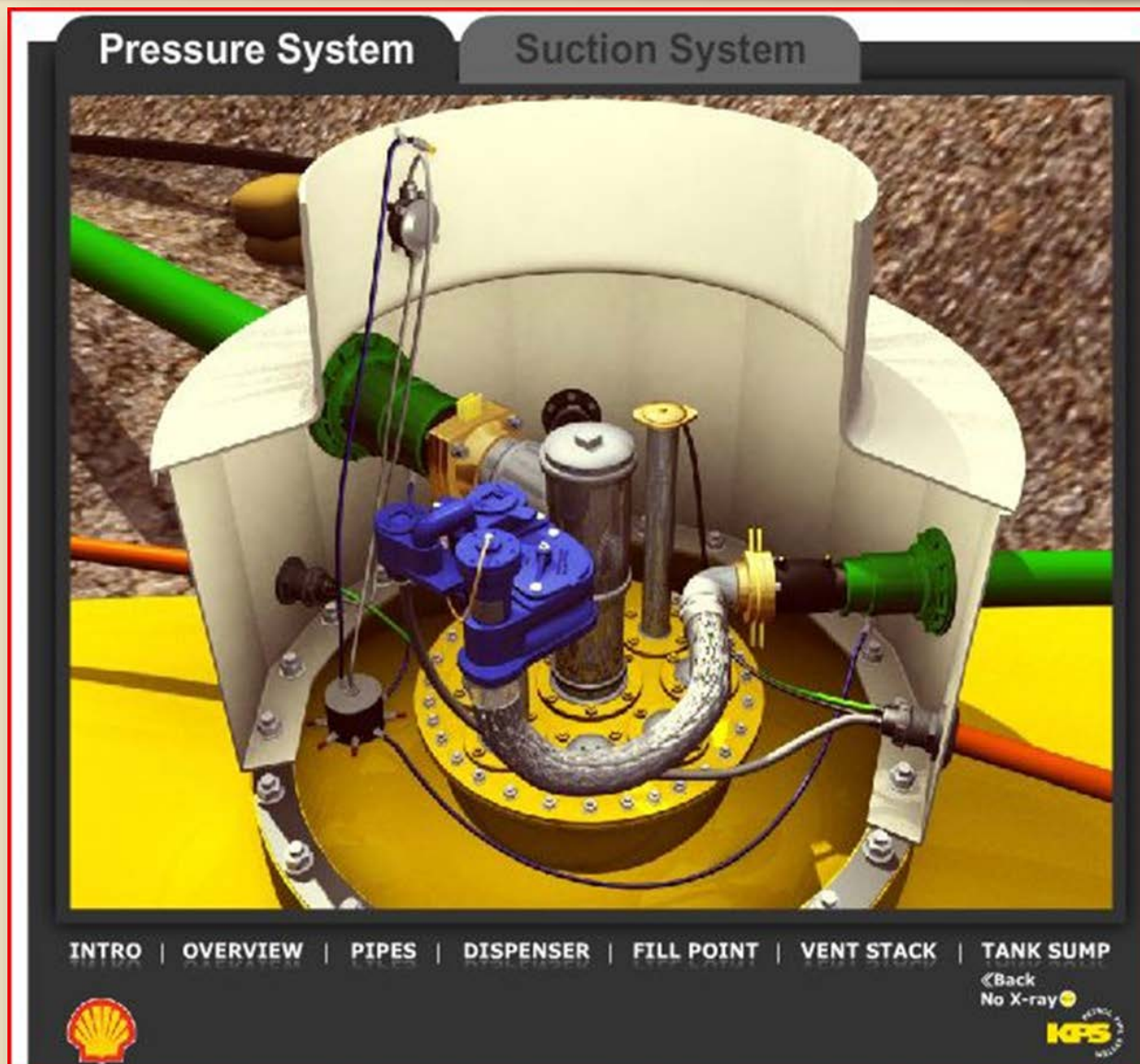
TANKS SECTION – TYPICAL SITE (ABOVE GROUND)



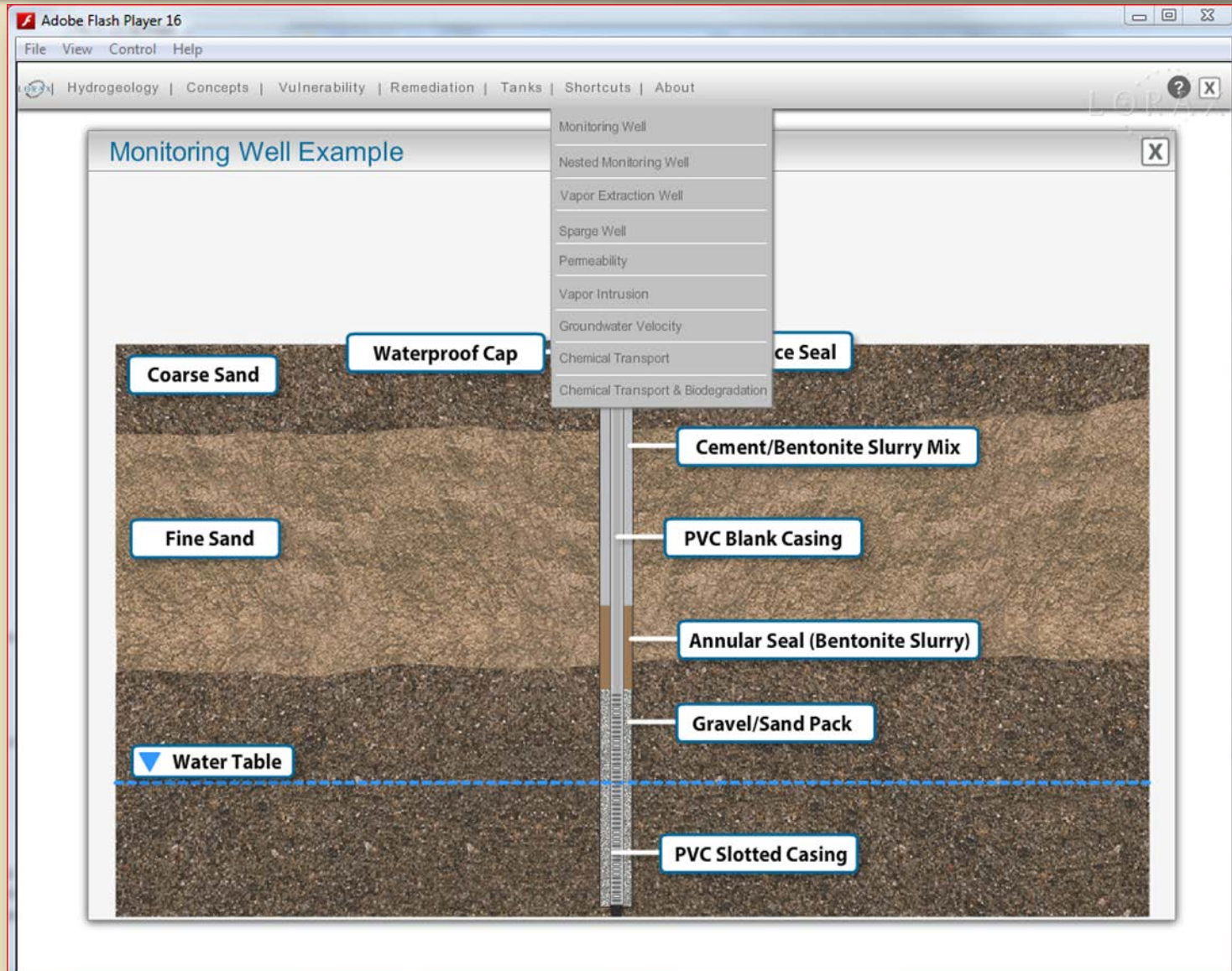
TANKS SECTION – TYPICAL SITE (BELOW GROUND)



TANKS SECTION – TANK SUMP (X-RAY VIEW)



SHORTCUTS SECTION – DROP-DOWN MENU



ABOUT SECTION – DROP-DOWN MENU

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Hydrogeology | Concepts | Vulnerability | Remediation | Tanks | Shortcuts | About

Back to Options ? X



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- About LORAX
- Introduction
- Quick Overview
- Detailed Overview
- Hydrogeology Tutorial
- PDF of User Guide

Introduction

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Hi. This is Curt Stanley with Shell Global Solutions, and on behalf of Shell and LORAX we would like to welcome you to the Animated Information System for Groundwater Assessment and Remediation.

00:00/01:34

OPTIONAL TRAINING OPPORTUNITIES

While the tool includes various overviews and a tutorial, additional training is recommended to help fully understand and utilize the power of the AIS.

½-Day Train the Trainer (up to 15 participants)

This training program is designed to familiarize the participants with the contents of the tool (hydrogeology, concepts related to fate and transport, site assessment, remediation, and UST systems) as well as how to effectively utilize the AIS for various audiences.

Full-Day Petroleum Contaminant Hydrogeology 101 (up to 25 participants)

This training program covers basic aspects of petroleum contaminant hydrogeology utilizing Edition 2 of the AIS.

- ✓ **Hydrogeology**
 - Unconfined/Confined Aquifers, Aquitards, Perched Zones
 - Groundwater Flow Gradients and Velocity
- ✓ **Contaminant Migration**
 - Key processes such as Solubility, Volatility, Retardation and Biodegradation (including degradation rates/half-life)
 - Includes sections on NAPL Considerations and Petroleum Vapor Intrusion
- ✓ **Site Investigation**
 - Monitoring well placement and design, single screen and multiple-screened wells)
- ✓ **Groundwater Vulnerability**
- ✓ **Various Remediation Technologies (excavation, SVE, AS, P&T, landfarming)**
 - Includes sections on Generic Spill Response and Risk-Based Corrective Action/Sustainable Remediation
- ✓ **Tanks**
 - UST Systems (suction and pressurized systems)

Tailored Training Programs

These programs can be developed to address specific user needs

FINAL CONSIDERATIONS

- The AIS is publicly available
- This tool is intended for the benefit of the general public
- This material is copyrighted by Shell and must not be altered without Shell's approval
- A knowledgeable user should run through this program several times in order to become familiar with both the technical content & functionality
- A trained user can adjust how the AIS is used to fit any audience